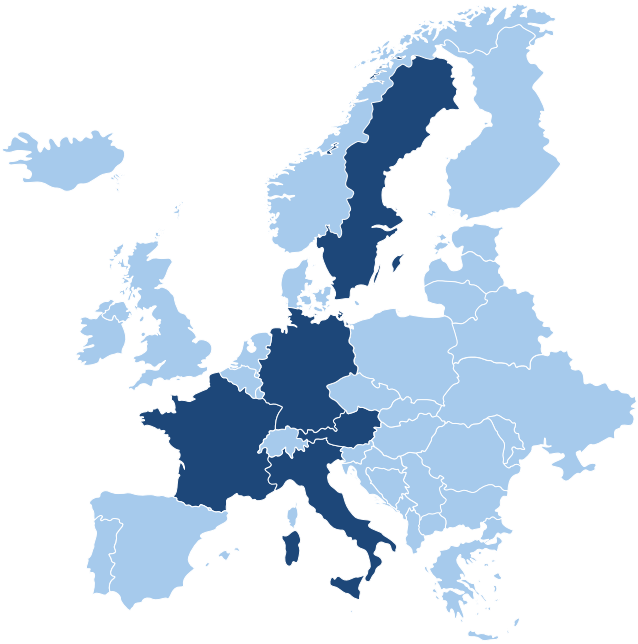
CIRCULAR ANALYTICS
PACKAGING NEWSLETTER



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UPDATE OF THE PACKAGING AND PACKAGING WASTE REGULATION

Adopted in 1st reading by the European Parliament: 24.04.2024

Provisional agreement: 04.03.2024

Proposal of the European Commission: 30.11.2022

On 24 April 2024, the European Parliament adopted the PPWR in its first reading. The regulation received strong support, passing with 476 votes in favour, 129 against, and 24 abstentions.

The adoption of the PPWR represents a major shift in the EU's approach to managing packaging and packaging waste, aiming to enhance the circular economy and harmonise the internal market for packaging across member states. This new regulation will eventually replace Packaging Directive 94/62/EC.

The earliest possible application is expected by mid-2026.

NAVIGATING THE FUTURE OF PACKAGING: THE IMPACT OF PPWR ON INNOVATIVE PACKAGING SOLUTIONS

The Packaging and Packaging Waste Regulation (PPWR) is now in force and will bring significant changes and challenges to the packaging value chain. While the objectives are clear and the need for change is evident, the implementation of this regulation leaves much room for interpretation and debate. To drive sustainability in the packaging sector, innovation needs to be developed and encouraged. However, not all innovative packaging solutions will automatically meet the PPWR targets, leading to specific exemptions for recyclability.

But what does "innovative packaging" mean in the context of the PPWR?

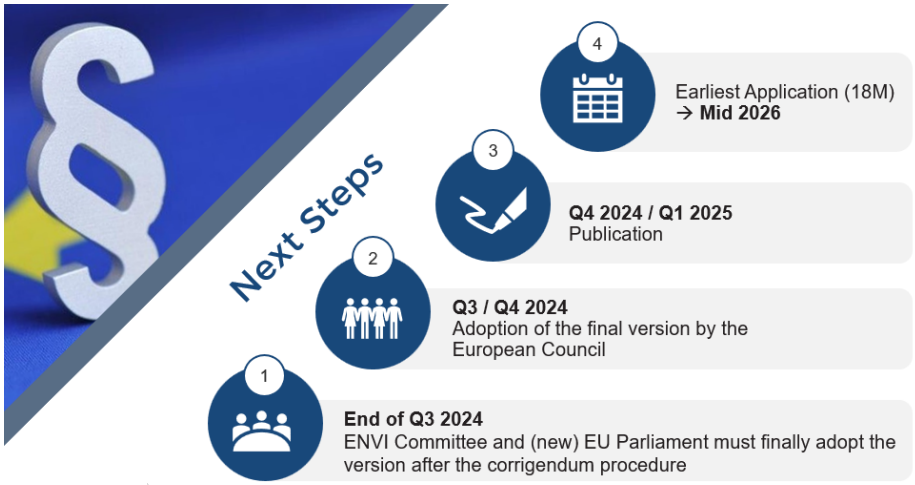
According to PPWR, innovative packaging significantly improves one or more packaging functions, such as protection or handling, and must have a demonstrable environmental benefit. Packaging that merely enhances product presentation is not considered innovative. Once a company develops innovative packaging, it must submit all technical details to the future regulatory authority and the Commission, which will decide whether it qualifies as innovative. If approved, the packaging will be exempt from the recycling targets (Article 6 PPWR) for five years after being placed on the market for the first time. A plan for the design of a recycling path should be available.

For instance, the company "NotPla" has introduced an algae-based bubble to the market, currently used for sports energy gels. The idea is that the "Ooho" packaging can be eaten after the product has been consumed, creating no waste and even providing nutritional value. Intuitively, this feels like innovative packaging. However, by definition, such packaging is not recyclable in practice, as there is no material left to recycle after consumption. Moreover, there is no recycling stream for such packaging, nor would there be a need for one if no material is left over. The criteria for assessing recyclability under the PPWR are still to be defined and will be clarified later by delegated acts. Depending on the definition, the algae packaging may not meet the criteria. In this case, the packaging could only be on the market for five years, making such innovation and investment less attractive. The PPWR would hinder the development of innovative packaging, even if it has a minimal impact at the end of its life cycle.

Another question arises: If my packaging is edible, does it even fall under PPWR at all, or will it be classified and assessed as food?

PPWR is an important step in the development of sustainable packaging. However, this example of innovative packaging highlights the many open questions the PPWR raises. Much remains to be defined and debated in the future, creating challenges for all companies. At Circular Analytics, we stand ready to help you navigate these challenges and transitions with our expertise in sustainable packaging consulting and PPWR-related issues.

NEXT STEPS OF THE PPWR



Further Information

COUNTRY SPECIFIC NEWS

CSDDD FORMALLY ADOPTED

EUROPEAN UNION - On May 24, 2024, EU Member States formally confirmed the Corporate Sustainability Due Diligence Directive (CSDDD) in Council.

Further Information

ESPR FORMALLY ADOPTED

EUROPEAN UNION - On May 27, 2027, the EU Council adopted the Ecodesign regulation (ESPR), which sets requirements for sustainable products

Further Information

THETHERED CAPS MANDATORY

EUROPEAN UNION - Tethered caps on bottles are mandatory in the EU from 3 July 2024 onwards.

Further Information

EU BAN ON BISPHENOL A

EUROPEAN UNION - On June 12, 2024, EU Expert Committee approved the proposal from the European Commission to ban bisphenol A in food contact materials.

Further Information

PLASTIC TAX POSTPONED AGAIN

ITALY - Italy postpones the plastic tax for the 7th time in a row and will now come into force on 01.07.2026.

Further Information

INFRINGEMENT PROCEEDINGS AGAINST ITALY

ITALY - Letter of formal notice for Italy for failed to fully transpose the Single-Use Plastics Directive (2019/904) into national law.

Further Information

TAX CREDIT FOR RECYCLED PLASTIC PURCHASE

ITALY - Application of a 36% tax credit for expenses related to the purchase of biodegradable, compostable or recycled packaging products, with a maximum limit of 20.000€ per year

Further Information

DRS FROM 2025

AUSTRIA - Austria will introduce the Deposit Return System (DRS) for single-use beverage containers from 01 January 2025.

Further Information

SORTING PLANT TRIPLAST OFFICIALLY OPERATING SINCE END OF JUNE

AUSTRIA - With a capacity of 100,000 tons per year, half of all of Austria's lightweight packaging material can be sorted and prepared for recycling at Ennshafen

Further Information

FURTHER INTRODUCTION OF MUNICIPAL PACKAGING TAX POSSIBLE

GERMANY - 47 municipalities are considering the introduction of a municipal packaging tax on disposable tableware.

Further Information

CONSULTATION ON MINIMUM STANDARD 2024

GERMANY - Central Agency Packaging Register has published a draft version of the 2024 edition of the minimum standard for recycling-friendly design.

Further Information

DRASTIC INCREASE IN EPR FEES FROM JULY 2024

SWEDEN - On 1 July 2024, packaging fees increased as a result of changes to the Ordinance on Producer Responsibility for Packaging.

Further Information

EPR FOR PACKAGING

USA: MINNESOTA - Minnesota introduces EPR for packaging and paper products. Producers must appoint a producer responsibility organisation by 01 January 2025.

Further Information

INTRODUCTION OF "SHRINKFLATION" DEGREE

FRANCE - From 1 July 2024, it will be compulsory to inform consumers of price increases for products whose quantity has decreased.

Further Information

UPDATED EPR COVERED MATERIAL LIST

USA: CALIFORNIA – CalRecycle published an updated list containing categories of EPR covered materials on 01 July 2024.

Further Information

CIRCULAR ANALYTICS NEWS

BENCHMARKING FOR BEVERAGE PACKAGING: UNBOTTELING THE TRUTH

To efficiently manage the evolving regulatory landscape focusing on the new requirements of the PPWR and market demands, the evaluation of packaging based on ecological criteria is as essential as knowing the benchmark for the industry.

Therefore, Circular Analytics in collaboration with the University of Applied Sciences, conducted a benchmarking project to analyse the current status quo of beverage packaging in the DACH region (Germany, Austria, and Switzerland), based on ecological criteria. This comprehensive study examined nearly 200 beverage packages across various product categories, such as mineral water, fruit juices, soft drinks, energy drinks, and syrups. use and reusable packaging were considered.

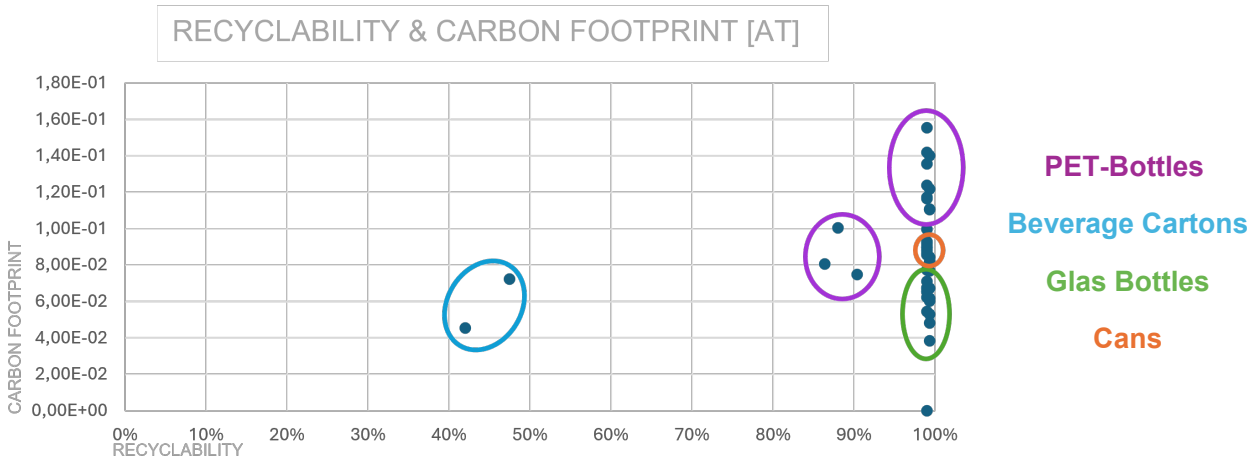
Key sustainability indicators were assessed, including recyclability, carbon footprint, recycled content, renewable raw materials share, and packaging efficiency.

The following results could be obtained:

RECYCLABILITY
The majority of packaging used in the beverage sector (in all categories) already meets the recyclability requirements according to the PPWR and thus achieves a recyclability rate of over 87%, far exceeding the minimum requirements of 70% that must be met by 2030. An exception to this is plastic bottles with non-material-compatible decorations. For example, paper labels on plastic bottles can significantly contaminate the material stream if they do not dissolve in the recycling process, or full-sleeve labels can prevent the underlying plastic bottle from being detected in the sorting facility (NIR-sorting). This shows that design for recycling must be considered from the very beginning of packaging design and that even small components like labels can significantly impact the recyclability of packaging.

JUXTAPOSITION RECYCLABILITY & CARBON FOOTPRINT: CATEGORY MINERAL WATER

When comparing recyclability and carbon footprint (in Austria), it is evident that all cans (orange) in this product category have a recyclability rate of 99%, with only lacquers and paints detracting from this rating. The results also show a similar comparability in the mid-range regarding the carbon footprint. Glass bottles (green) also have a recyclability rate of 99% and exhibit the lowest carbon footprint due to being reusable bottles. In contrast, PET bottles (blue) have the highest carbon footprint, although their recyclability is also around 99%. Only three analyzed PET bottles show a lower recyclability of 86-90%, attributed to the use of non-compliant labels. The two examined beverage cartons (yellow) have a moderate environmental footprint but the lowest recyclability rates of 42% and 47%. Given the current form of the PPWR, which requires at least 70% recyclability, there is little need for optimization in this product segment.



RECYCLED CONTENT

The analysis of recycled content showed that, on average, more than 30% secondary materials are already used in plastic packaging for beverages.. The Single Use Plastics Directive of 2019 already mandates a minimum recycled content of at least 30% for these packages. However, the interpretation in both legal texts is very different, as the amount of plastic bottles placed on the market per member state is used as a reference quantity for calculation in one case, while in the latest version of the PPWR, the recycled content per packaging type per production site counts

PACKAGING EFFICIENCY

The study also considered the packaging efficiency of the products, i.e., the ratio of the weight of the packaging to the weight of the product. The smaller the value, the better, as this indicates what percentage of the total weight (product and packaging) is attributed to the packaging. An average packaging efficiency of 12.6% was calculated. The greatest differences were found in the product category mineralwater, as the packaging, including glass bottles, plastic bottles of varying wall thicknesses, aluminum cans, and beverage cartons. The range extends from 2% for thin-walled plastic bottles to over 50% for single-use glass bottles.

SUMMARY

To sum up, the beverage industry is already quite advanced in designing circular packaging. However, the legal framework requires continuous monitoring of sustainability parameters and the constant evaluation of design for recycling in packaging.

CARBON FOOTPRINT: CRADLE-TO-GRAVE VS. CRADLE-TO-GATE

As the cradle-to-gate calculation is becoming increasingly important, this article compares cradle-to-gate with cradle-to-grave calculation and discusses the differences between the two approaches and their interpretations.

Cradle-to-grave means that the entire raw material and production, the transportation phase, the use phase and also the end of life, i.e. waste treatment, are considered. In the cradle-to-gate approach, the model ends at the factory gate where the packaging is produced - in theory. The fact that this is not always so simple is explained below.

One important question that needs to be clarified in life cycle analyses, and is also particularly important in the packaging sector, is, who pays for the recycling process in terms of environmental impacts.

An example: If an aluminium can is recycled energy has to be used in the recycling process to sort, transport and remelt the can, which leads to emissions. Secondary raw material - without incurring the energy-intensive processing of bauxite to aluminium - is the product of this process (Post-consumer recycled content [PCR]).

Now the recycler might feel that it would be unfair if the emissions were charged to him, as he has produced new raw material. The recycler may instead feel that the emissions should be charged to the purchaser of the new PCR material.

This is where the Circular Footprint Formula (CFF) which is applied in the Product Environmental Footprint (PEF) and recommended by the EU Commission (Source) comes into play. Among other things, the formula divides the credits and burdens from the end of life between the system that recycles and the system that uses the PCR-material - i.e. between recyclable packaging and packaging that uses recycled content. To make a meaningful allocation, the CFF is based on the market situation (supply and demand). Each material is assigned a factor from 0 to 1.

- A low A-factor is assigned to a material that has a high demand on the market. In terms of the CFF, this means that a low A-factor tends to reward recycling - i.e. environmental impacts are allocated to the use of recycled content.
- Conversely, this means that if the A-factor is high, the use of recycled content is more likely to be rewarded.

As the A-factor is market-based and recommended by PEF, the default value should be used. The PEF allows the A-factor to be set to 1 for internal use in the cradle-to-gate approach for the purposes of a hotspot analysis. No adjustment of the A-factor is required for a cradle-to-grave analysis.

EXAMPLE: ALUMINIUM CAN – CRADLE-TO-GRAVE VS. CRADLE-TO-GATE

The following example in Figure 1 shows the life cycle (without considering the use phase) of an aluminium can. This means that material and production, transportation and the end of life, i.e. recycling, incineration and landfill, are included in the cradle-to-grave calculation, and just the raw material and production phase in the cradle-to-gate calculation. It is assumed that the aluminium is produced in Europe and then processed into a beverage can and placed on market in Germany. In addition, the can consists of 75% post-consumer recycled content and 25% virgin material. The result of a can fully made of virgin Aluminium is also shown for comparison:

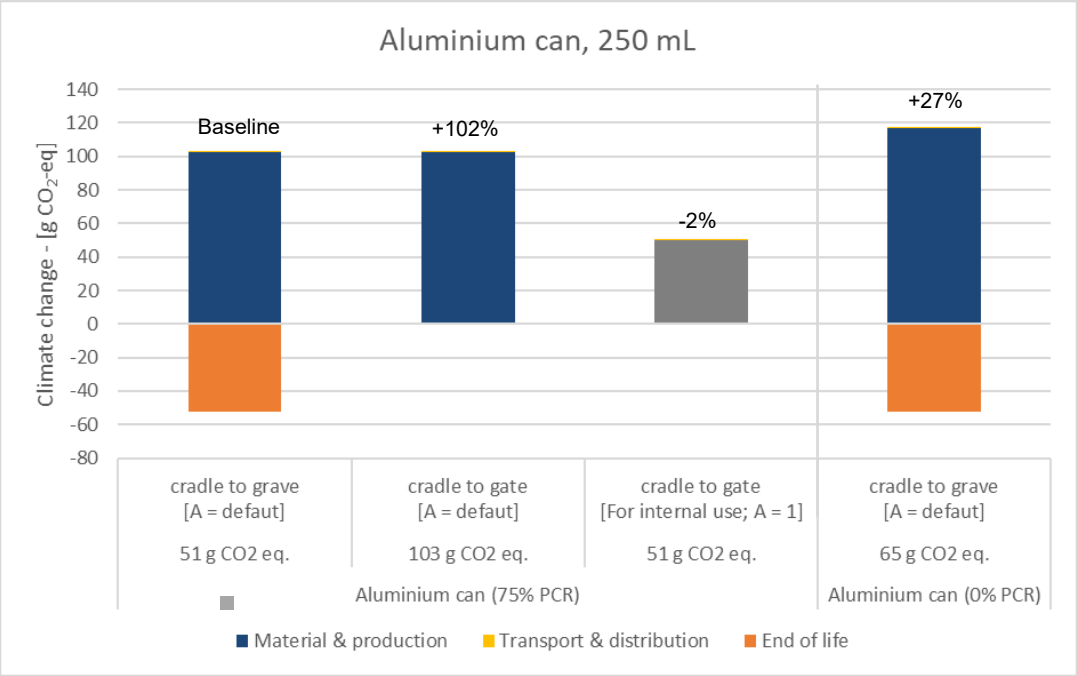


Figure 1: Aluminium can – cradle-to-grave vs. cradle-to-gate *| Different A-Values are presented | A = default for Aluminium: 0.2. | PCR: Post consumer recycled content | Negative values (orange) are net-EoL-credits resulting from the potential substitution of new raw materials with less emission-intensive post-consumer recycled content in future packaging. The orange credits are deducted from the remaining positive values. | The use phase is not considered. | The can weights 10.7 g. Source: Circular Analytics assessment*

The example in Figure 1 shows that the impact of the aluminium can in the cradle-to-gate approach with a default allocation factor according to the EU Commission (second column) has the highest environmental impact. It should be noted here that a cradle-to-grave approach generates many credits, as recycled aluminium potentially can replace virgin aluminium in a future packaging, which is very energy-intensive to produce. The total impact (all burdens in all life cycle phases) of the cradle-to-grave result is thus reduced by 54% by the credits.
The third column: cradle to gate [A = 1] is only appropriate for internal consideration in the sense of a hotspot analysis, as it is not linked to the market. Calculations with A = 1 may therefore not be passed along in accordance with PEF. To be able to interpret results clearly, the A-factor used must therefore always be supplied with the results.
The fourth bar serves as a comparison in the cradle-to-grave approach if no PCR were used, i.e. the entire can would consist of virgin aluminium. Only default A-factors are calculated in the cradle-to-grave calculations, as the PEF does not provide otherwise. The 0% PCR can cause 27% more greenhouse gas emissions then the can with 75% PCR.

SUMMARY

The topics of circular footprint formula and end-of-life allocation are very complex and, as the (extreme) example of the aluminium can has shown, strongly depend on the type of end-of-life allocation. For users, this means that the A = default value should always be used to remain PEF compliant and to ensure comparability with other results and that the selected A value should also be reported with the results.

Nevertheless, it should be considered with cradle-to-gate results that materials with EoL-net-credits and a low A-value are at a disadvantage in a direct comparison just of cradle-to-gate results because the EoL-credits are missing.

COMPARATIVE ENVIRONMENTAL IMPACT STUDY OF PE PACKAGING AND SUBSTITUTES

In light of current and future challenges facing society and the packaging industry, ExxonMobil commissioned a comparative study to Circular Analytics to provide decision-makers with a comprehensive overview of certain potential life cycle environmental impacts of different packaging materials.

The study evaluates and compares climate change, water scarcity, and fossil resource use potential impacts for 94 packaging options across 37 packaged products. PE-based plastic packaging and corresponding non-plastic-based alternatives were examined in the following five end-use applications:

- PE collation shrink films and alternatives,
- PE stretch film wraps and alternatives,
- PE rigid packaging and alternatives for non-food products,
- PE heavy duty sacks and alternatives
- and PE flexible food packaging and alternatives

The study refers to the European market and accordingly a European scenario and examines all packaging cradle-to-grave: Raw material & production, transport & distribution and end-of-life of the packaging are considered. The following findings can be derived from the study:

- Plastics generally have lower potential environmental impacts than glass and metals, except in four cases (in the rigid non-food application) where PE-based packaging has higher or similar water scarcity and fossil resource use than glass and tin-plated steel packaging formats.
- For 57% of the analysed packaging comparisons, PE-based packaging shows a lower potential climate change impact among the packaging material studies, but only in 32% of the cases for fossil resources use, where paper alternatives often have a lower potential impact. However, it should be noted that the potential environmental impact assessment of packaging is a complex process and must be considered case by case.
- Plastics and other materials can enable paper to fulfil packaging functions which may not be met by paper alone. For example, many of the paper-based packaging examples studied were multi-material formulations with plastic layers or components to provide the required performance attributes.
- Sensitivity analysis showed that the weight of the packaging material, end-of-life dispositions, geographical location effects, transport distances, and electric grid mixes are key parameters that influenced the results.
- The study found no distinct trend in which material has the lowest potential environmental Impacts. Factors such as packaging material composition and packaging format designs and weights were found to be important parameters in the analyses.
- Increasing recycled material content and recyclability of PE-based packaging, and metal and glass alternative formats show a general trend of reductions in the considered potential environmental impact categories for packaging materials.

Note that use-phase packaging performance differences, such as product shelf-life, breakage rates, and product losses, are excluded from the study and may affect the results and the findings.

More background information on the study and a more detailed analysis of the results can be downloaded on our website: LCA-Summary-Report-PE-packaging-and-substitutes-on-the-European-market-Circular-Analytics_2024.pdf

PACKAGING COCKPIT NEWS

Packaging Cockpit GmbH offers a packaging management software for fact-based decisions based on transparent criteria for sustainable packaging. The results can be communicated to customers, authorities and consumers quickly and always up to date. The Packaging Cockpit enables digitalisation and data flow in the supply chain as well as the calculation of recyclability and streamlined life cycle assessment in one tool. The Packaging Cockpit software is available as a web application and managed service version.

REPORTS FOR PACKAGING SYSTEMS

The Packaging Cockpit will be expanded by the end of the year: in addition to reports for individual packaging units and components, the Packaging Cockpit can also automatically generate reports for entire packaging systems. A packaging system is, for example, a six-pack of water bottles with a shrink wrap around the outside or a yogurt cup tray. With just a few clicks, you can create detailed reports on master data, recyclability, life cycle assessment and information on license fees and plastic taxes for your packaging. Take advantage of this new feature to simplify your reporting and track your sustainability goals more effectively.

EXCEL TEMPLATE UPLOADS

The Packaging Cockpit team will offer an innovative Excel template for download that you can edit externally and then easily upload again. With contextual dropdowns, it allows you to quickly and efficiently process your packaging data. This offers the advantage of semi-automated import of large amounts of data into the tool, saving you time and reducing errors. The first version will be available from autumn - don't miss the chance to optimize your workflows and increase your productivity!

For further information please contact: support@packaging-cockpit.com

24. - 26. September 2024: EUROPEAN TRADE FAIR FOR PACKAGING, TECHNOLOGY AND PROCESSING

Location: PM Messezentrum || Messezentrum, 90471 Nuremberg

FachPack is the leading European trade fair for packaging, technology, and processing, and has established itself in recent years as a vital guide for the packaging industry and its customers. In collaboration with our partner company Packaging Cockpit, we will be there to showcase our innovative solutions for your packaging needs. Our Packaging Specification Management Software provides customized solutions tailored to your specific requirements, ensuring a streamlined and efficient approach to packaging management.

For further information

10. Oktober 2024: AUSTRIAN PACKAGING DAY

Location: Festsaal, FH Campus Wien || Favoritenstraße 226, 1100 Vienna

On October 10, 2024, our partner FH Campus Wien, in collaboration with their cooperation partners, will once again host the Austrian Packaging Day. Representatives from the entire packaging industry will participate in the event – from manufacturers to packaging companies, from service providers to public authorities. The Austrian Packaging Day brings together all stakeholders involved in the field of packaging. This year, the Packaging Day will be held as a full-day event to cover as many areas as possible.

PROGRAMM

WELCOME	09:15	Entrance and Coffee
	10:00	Welcome and Opening
	10:20	Presentation Main Sponsors
	10:25	Keynote Global Packaging Perspective
PART I: SAFETY	10:45	Safety of Coating & NIAS
	11:05	Safty Assessment pf plastic recyclates - The Safecycle Project
	11:25	Strengthening Member States' capabilities to assess the safety, authenticity, and origin of food
	11:45	Podium - Challenges in Safety Assessment of FCM
	12:00	*Lunch*
PART II: CIRCULARITY	13:00	D4R - Labels in the Circular Economy
	13:20	D4R - New Developments in HDPE Recycling
	13:40	Management of Packaging Data
	14:00	Benchmarking Study on Packaging
	14:30	Panel: Success Factors and Obstacles in Implementing the PPWR
	15:00	Break
PART III: SUSTAINABILITY	15:30	Deforestation-Free Supply Chain
	15:50	Packaging Transformation in Practice - Challenges for Brand Owners and Retailers
	16:10	Strategy of the Austrian Federal Government: Plastics and Packaging
	16:30	Interview - Packaging in the Contradiction Between Regulation, Sustainability, and Innovation
	17:00	*Break*
	17:30	Propak Awards
	18:00	State Prize for Smart Packaging
	19:00	Dinner and Networking

We at Circular Analytics and Packaging Cockpit will also be attending and look forward to engaging in meaningful discussions.

For further information

16. Oktober 2024: REVOLUTION ON THE SHELF – INNOVATIONS IN FOOD PACKAGING
(„REVOLUTION IM REGAL – NEUERUNGEN IN DER LEBENSMITTELVERPACKUNG) - GERMAN ONLY EVENT

Location: Seminarzentrum Schwaighof || Landsberger Straße 11, 3100 St.Pölten

Innovations in the packaging sector play an important role in the implementation of sustainability agendas. These are supported by comprehensive legal changes, anchored in the Packaging and Packaging Waste Regulation (PPWR) adopted in April 2024. Due to new requirements in the recycling sector and the recyclability of packaging, new solutions for materials, machines and logistics are needed depending on the product category. Together with the State Committee for the Food Trade and the Food Industry Division of the Lower Austrian Chamber of Commerce, the Lower Austria Food Cluster invites you to an information event and to reflect on new opportunities and potential of these recyclable materials.

Registration free of charge and further information

Strategies for a Transition to Circular Economy

We specialize in assessing and comprehensively optimizing the sustainability of packaging – our goal is to develop circular and sustainable solutions for our clients.

We are internationally oriented and offer the following range of services:

Packaging Assessment
Regulatory Research
Life Cycle Assessment
Packaging Strategy
Circular Packaging Training
Research and Industry Projects

IMPRINT

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CIRCULAR ANALYTICS

In collaboration with our partner Packaging Cockpit GmbH.*

packaging cockpit

**Responsible for texts related to Packaging Cockpit.*